

REMARKS

Review and reconsideration on the merits are requested.

Newly Cited Prior Art

U.S. 6,252,261 Usui et al (Usui).

New Claim Rejection - 35 U.S.C. § 102/103

Claims 1, 2 and 8, all pending claims, were rejected under 35 U.S.C. § 102(b) as being anticipated by and/or rejected under 35 U.S.C. § 103(a) as being unpatentable over Usui.

This rejection is respectfully traversed.

Applicants will not repeat the Examiner's language in this RESPONSE unless necessary to understand Applicants' traversal which is now presented.

The Examiner states that the manufacturing method of the self-supported GaN substrate of the present invention is essentially identical to the crystal growth technique disclosed in Usui.

As a consequence, the Examiner reasons and concludes that the characteristics of the present invention such as FWHM, i.e., X-ray diffraction half width (hereinafter referred to as "FWHM") would be inherently present in the nitride semiconductor layer as taught by Usui.

However, the method of the present invention and the method of Usui to form a self-supported GaN substrate are not completely identical. A mask patterning used in the manufacture of self-supported GaN substrate of the present invention is not a "stripe". Predetermined numbers of openings (31) with predetermined area are uniformly distributed in the mask layer (3). Those numbers and areas are determined depending on the dislocation density of the first nitride semiconductor layer (2) under the mask layer (3). Although the shape of the openings (31) is not restrictive (see page 7, line 10 in the specification), a "circle" shape is mainly used (see Fig. 1).

In the Usui method, on the other hand, the stripe mask patterning (see col. 3, lines 35-36, col. 6, line 17, col. 7, line 64, col. 28, lines 62-63, col. 29, lines 44-45, col. 31, lines 2-3) is used in relation to the propagation of dislocations. The stripe mask of Usui is seen to be quite different from the circle mask patterning of the present invention.

Applicant, however, finds it difficult to discuss how differences between the mask patterns of the present invention and those of Usui influence FWHM characteristics. Accordingly, Applicant proceeded to replicate Usui to confirm whether or not the GaN substrate of Usui has an FWHM value (FWHM of 50 seconds or less in (20-24) reflection) and would fall within the limits set forth in the claims of the present application. The result of that replication is set forth in the attached DECLARATION OF TAKAYUKI SUZUKI UNDER 37 CFR §1 J32.

In the GaN substrate obtained by the replication of Usui, the FWHM of (20-24) reflection was 156 seconds. The declaration shows that the FWHM characteristics of 50 seconds or less in the present invention is not present in the products of Usui.

Since Usui is relied upon for the first time in the final rejection, applicants respectfully that submission and consideration of the present DECLARATION...1.312 at this time is timely.

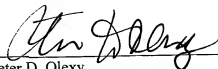
Applicants respectfully submit that the data in the attached DECLARATION...1.132 establishes that the claims of the present application are not **inherently** anticipated by Usui and are not rendered obvious by Usui.

Withdrawal of all rejections and allowance is requested.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Peter D. Olexy", is written over a horizontal line.

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